

- 1.15 (a) Differentiate among risk, peril, and hazard.
(b) Give an example of each.

CHAPTER TWO

PROPERTY/CASUALTY COVERAGES

2.1 INTRODUCTION

Chapter One outlined the reasons that consumers buy insurance. In Chapter 2 we will review some of the mostly widely sold coverages available from property/casualty insurance companies and the areas of economic insecurity for which the property/casualty insurance industry provides insurance. We will describe these coverages in a very general and generic way. That is, it is not the purpose of this chapter to outline any particular contract used by any particular insurer. Rather, we will attempt to describe property/casualty coverages that exist around the world and the general level of security that they provide.

Readers are invited to review their own insurance coverage at this time. Most of you will have some property/casualty insurance contract, be it an automobile insurance policy or insurance for a homeowner or tenant. It will prove advantageous to look at your particular coverage when you are reading the generic description of that coverage in this chapter.

2.2 AUTOMOBILE INSURANCE

Important coverages normally available in an automobile insurance policy include *liability insurance, medical benefits, uninsured and underinsured motorist coverage, and collision*

and other than collision (OTC) insurance. In many jurisdictions, the first two coverages are compulsory in that the law requires each auto owner to purchase insurance that meets the *financial responsibility limits*, whereas the others are usually purchased at the option of the policyholder. If you require a loan to finance the purchase of your car, then the financial institution may require collision and comprehensive coverage.

The insured parties are the named policyholder and immediate family. The policy coverage applies when the policyholder or family member is driving one of the vehicles listed in the policy declarations (your covered auto). Coverage also applies if the covered auto is being driven by an "invited driver" and coverage usually extends to a utility trailer attached to the vehicle. The policy does not cover normal operating expenses such as wear and tear, depreciation, rust, and so on. Coverage normally ceases if the vehicle is being used for commercial purposes. *Commercial auto policies* exist for this purpose, but with a different price structure. They will not be discussed further in this text.

2.2.1 LIABILITY INSURANCE

The *liability* section of the auto policy provides coverage to the policyholder if, as the driver of a covered vehicle, the policyholder injures a third party or damages a third party's property. The policyholder's property is not covered by the auto liability insurance, but would normally be covered under the policyholder's homeowners policy. Although most liability incidents are settled without going to court, if the policyholder is sued with respect to negligence for such bodily injury or property damage, the insurer will provide legal defense for the policyholder and, if the policyholder is found to be liable, the insurer will also pay damages assessed against the policyholder up to the limits of coverage defined in the policy. Note that the total cost of legal defense and payment of damages can exceed the policy limits because only the payment for damages is subject to the policy limits. However, the insurer is allowed to cease its legal defense when the amount it has paid for damages reaches the policy limits. A person who intentionally causes a loss is not covered. There is also no coverage if workers compensation is supposed to provide the benefits.

Third-party liability coverage is compulsory in virtually all jurisdictions before you can legally drive your car (although many drivers drive illegally without such insurance). Virtually all jurisdictions specify some minimum level of liability coverage, such as \$25,000 in most states and \$200,000 in most provinces in Canada. Higher limits are available for an extra premium. There may be separate (called *split*) limits for the bodily injury and the property damage coverages (the latter limit is normally smaller). Further, the bodily injury coverage may specify a limit per person injured per occurrence and a second overall total limit per occurrence (e.g., \$50,000 per person and \$100,000 per occurrence). Because bodily injuries can result in claims of millions of dollars and the courts can attach your personal assets if the assessed damages exceed your insurance coverage, you are well advised to buy increased limits of liability coverage.

Premiums for the liability coverage vary by the limits chosen, the territory in which the vehicle is garaged, the use of the automobile (e.g., pleasure or business), the accident, claims and moving vehicle convictions record of the policyholder, and often the age, sex, and marital status of the policyholder if not precluded by human rights legislation or regulatory rules.

2.2.2 MEDICAL BENEFITS

Generally, the second policy coverage is called *medical payments* (in a tort jurisdiction), *personal injury protection* (in a no-fault jurisdiction), or *accident benefits* (in Canada). This coverage provides protection to the policyholder and family in the case of injury in an accident for which the policyholder would be liable (you can't sue yourself for coverage under third party liability, so this is the alternative), or for any accident in a no-fault jurisdiction. Again, this coverage is usually compulsory.

Personal injury protection provides defined levels of benefits to the injured policyholder or family member for income replacement, medical care, rehabilitation, home care, survivor's benefits, and so on. Generally there is no coverage if workers compensation is supposed to provide the benefits.

Benefits under the liability section of the auto policy are available only if the liability insurer believes its insured

was *at fault* in the accident or the injured party sues the insured and proves that the insured was at fault in the accident. This may require a lengthy court case, although the majority of cases are settled out of court. This at-fault system of settlement is also called the *tort* system. Evidence exists that in the tort system small claims are highly overcompensated, usually through out-of-court settlements, whereas larger claims are compensated for as little as 30% of their costs. Further, only about 25% of the premium dollar ends up in the hands of the injured party. The other 75% is consumed by legal fees, court costs, and insurer administration expenses. Because of this, many jurisdictions have implemented *no-fault* auto insurance systems.

Under a no-fault system, the injured party does not have to sue for compensation or even prove that the driver of the other car was at fault for the accident. Instead, the benefits that would normally be paid by an at-fault party's liability insurance become payable under the insured's personal injury protection. So instead of the injured party suing for damages because of bodily injury or property damage, the injured party gets the level of benefits defined in the policy's personal injury protection. Thus the benefits are not paid by the insurer of the at-fault driver; the benefits are paid by the injured party's own insurer. The tort system liability premium is significantly decreased while the personal injury protection premium is significantly increased under a no-fault system. In theory, the total premium under the no-fault system should be lower than the total premium under the tort system because many legal and court expenses are reduced or eliminated. On the other hand, the flexibility of the tort system is lost to the defined benefits of the no-fault system.

At the time of writing, two provinces in Canada and seventeen states in the United States had some kind of no-fault legislation. There are virtually as many no-fault insurance systems as there are jurisdictions with these systems. For example, some jurisdictions use a system called *threshold no-fault*, under which you look first to your own insurer for defined no-fault benefits for any minor accident, but if your injuries exceed a defined verbal threshold (*e.g.*, death, total and permanent disability, disfigurement, or medical expenses which exceed a specified amount), you can then pursue a tort

settlement. In this case, the court may have to make a two-part decision. First, does your injury exceed the defined threshold? Second, if it does, what is the appropriate tort settlement given that fault has been established.

In three other provinces in Canada, the provincial government runs the auto insurance system through a *government monopoly*. In these provinces, there is no issue as to who is at fault since there is only one insurer/payor. Government monopolies for auto insurance are rare around the world. However, government regulation of coverage and/or rates is fairly common. Even in a pure no-fault environment, the police will still be asked which driver was at fault or the degrees to which the drivers shared in the fault, because, in most jurisdictions, at-fault events cause the premium to rise at the next policy renewal, and remain elevated for several years.

Virtually all auto policies provide coverage for out-of-state or out-of-province accidents, up to the amounts required in the jurisdiction where the accident occurs. However, most policies issued in Canada or the United States limit liability coverage to just Canada and the United States.

2.2.3 UNINSURED AND UNDERINSURED MOTORIST COVERAGE

A third section of the policy usually provides protection for the policyholder and family if injured by either an *unidentified, uninsured, or underinsured* motorist (*i.e.*, someone who is insured but at lower liability limits than purchased by the policyholder or required by law). Under this coverage, in a tort jurisdiction, the policyholder has coverage from his or her own insurer equivalent to what would have existed had the motorist causing the accident been identifiable or fully insured. In this respect, this coverage is similar to no-fault where your insurer covers your injuries and damages (even if the uninsured or underinsured driver was at fault). Note that this benefit provides an incentive for the policyholder to buy larger liability limits of coverage for himself or herself.

2.2.4 COLLISION AND OTHER THAN COLLISION

A fourth section of a typical auto insurance policy provides coverage for damage to the policyholder's own vehicle, under

two subsections: one covering *collision* and another covering *other than collision* (OTC). The policyholder has the option to purchase one or the other, or both, of these coverages.

Under collision insurance, if your vehicle is damaged in an accident, the insurer will pay the cost of its repair or replacement as defined in the policy, normally subject to a *deductible* such as \$500. This means that the policyholder is responsible for the first \$500 of the repair or replacement cost. This tends to eliminate the filing of small claims for which the cost of administration and settlement would likely exceed the benefit. It also provides an economic incentive for the policyholder to prevent accidents.

The *collision limit* is the lesser of the actual cash value of the damaged property or the amount necessary to repair or replace it. The insurer reserves the right to pay for the loss in money or repair or replace the damaged property. As an aside, on some new cars the depreciated value of the car (which is the policy limit) may be less than the outstanding balance of the car loan, which can create potential problems in the case of a serious accident. Special provisions exist for such instances.

If another driver is at fault for the accident in a tort jurisdiction, the insurer that paid the policyholder the defined collision benefits can sue the at-fault driver and recover its costs and the deductible from the at-fault driver or his or her insurer. If the insurer decides not to sue, the policyholder can try to recover the deductible from the alleged at-fault driver or insurer, but at the policyholder's risk and expense.

The ability of the insurer to sue the at-fault driver in a tort jurisdiction and recover its costs is called *subrogation*. Technically, subrogation means that the insurer, once it has indemnified the policyholder, automatically assumes the legal rights of the policyholder. As a result of the subrogation process, premiums for collision insurance tend to be lower, whereas premiums for liability insurance tend to be higher than without subrogation. However, the resulting liability and collision premiums are more appropriate and equitable because the resultant premiums reflect the true costs that are brought to the insurance pool by the policyholder. Also the at-fault party, rather than an innocent victim, bears the cost. Subrogation is also important because the liability coverage is normally compulsory whereas the collision coverage is not.

Another legal right of the insurer under an auto insurance policy is called *salvage*. If a collision claim requires paying the full value of the vehicle (known colloquially as a write-off), the ownership rights to any remaining value in the vehicle accrue to the insurer. Thus, the insurer has the right to take the vehicle to a wrecker and retain any salvage value that may remain. If the salvage value exceeds the amount the insurer originally paid to the policyholder, the payment to the policyholder must be increased to at least the salvage value payment. That is, the insurer cannot profit from the salvage provision. The salvage provision ultimately decreases the premium required for the collision coverage.

Collision premiums vary according to the type of vehicle (based on its value plus an index of damageability and cost to repair), its use (*e.g.*, business or pleasure), and normally also the territory in which the vehicle is garaged. Almost all jurisdictions allow premiums to vary according to the accident history of the driver. Finally, most jurisdictions allow premiums to vary based on the policyholder's age, gender and (sometimes) marital status. The use of these parameters has become a human rights issue in some jurisdictions. However, statistics do exist that clearly show a correlation between each of these risk classification factors and the expected costs brought to the risk class by the policyholder.

The final optional subsection of a typical auto insurance policy covers perils *other than collision*, such as hail, fire, vandalism, stone chips, and so on. Excluded perils include war, damage due to wear and tear, road damage to tires, radioactive contamination, damage due to the discharge of a nuclear weapon, and, of course, collision.

If coverage is provided for all perils except those specifically excluded, such as those just listed above, then it is referred to as *comprehensive* coverage. However, if the policy only covers perils that are specifically listed (as opposed to all perils except those specifically excluded), then the coverage is referred to as *specified perils*. OTC premiums usually vary only by the type of vehicle (its value and expectation as to ease of damage and cost to repair), and the territory where the vehicle is garaged. Personal attributes of the policyholder (*e.g.*, age, sex, marital status, claims history) are not normally deemed to be relevant in pricing this coverage.

It is possible to combine the collision and OTC coverages into an *all risks* coverage, but this is seldom done. The collision deductible is normally significantly higher than the OTC deductible (*e.g.*, \$500 versus \$50). Chapter One of this book argues that this is not analytically logical.

2.3 HOMEOWNERS INSURANCE

As with auto insurance, the typical *homeowners insurance* policy has different sections that specify different insurance coverages. Section I of the policy is normally subdivided into four subsections often called Coverages A, B, C, and D.

Coverage A provides protection against damage to your house (dwelling) on named perils or an all-risks basis up to a set limit. Covered perils vary from place to place. For example, some policies sold on the west coast of the United States do not cover earthquakes. Some policies for homes built in low-lying areas do not cover flooding, and so on. These exclusions and limits are designed to make rates more affordable and equitable, given the expected costs that are brought to the insurance pool by the policyholders.

Loss or damage occurring after the dwelling has been vacant for more than thirty consecutive days and damage caused by nuclear accidents or acts of war are not covered, nor are buildings used for business or farming purposes. Finally, loss or damage resulting from intentional or criminal acts of the insured is not covered.

The fact that not all perils are covered brings up the matter of determining exactly which peril did, in fact, cause the loss. Under an important principle called the *doctrine of proximate cause*, a loss is covered only if a *covered peril* is the proximate cause of a *covered consequence* (note the need for both a covered cause and a covered consequence). A peril is covered if it is a named peril in a specified perils policy or it is not an excluded peril in a comprehensive or all-risks policy. A covered peril is the proximate cause if it initiates an unbroken sequence of events leading to a covered consequence. For example, if a fire causes a power outage, and as a result of the power outage all of the food in your freezer goes bad, then this loss is covered if you are covered for fire (a covered peril)

and for reimbursement of food spoilage (a covered consequence). Fire is the proximate cause.

Homeowners dwelling coverage comes with a deductible to preclude small claims which are both administratively expensive and, given the utility concepts of Chapter One, uneconomical to the insured.

In the previous section on auto insurance, we described subrogation, which also exists in any homeowners policy. To show how subrogation might work with homeowners dwelling insurance, consider the following example.

A homeowner experiences a \$50,000 fire in the home. It is established that the cause of the fire is faulty wiring in a kitchen appliance. When the insurer pays the homeowner the \$50,000 necessary to rebuild the kitchen, it acquires the legal rights of the homeowner to sue the appliance manufacturer for negligence. If successful, the insurer can recover its \$50,000 of costs. (If it recovers more, the extra amount would be paid to the homeowner.) In this instance, the \$50,000 was initially considered a homeowner's loss, but after it is recovered from the manufacturer's insurer it will be viewed instead as a product liability loss. As a result, product liability premiums will increase and homeowners dwelling insurance premiums will decrease, as it should be.

This example alludes to another feature that may exist within a homeowners policy. We noted earlier that there is a deductible within the homeowners policy to avoid the expense of small claims. This deductible may be defined so as to disappear after the loss reaches a certain size. This is illustrated more fully in the example that follows.

Example 2.1

A homeowners dwelling policy has a deductible of 250 for claims up to 1000. Between 1000 and 2000, the deductible disappears linearly so that for claims of 2000 or more, there is no deductible. Determine the payment that would be made to the policyholder on a claim of 1300.

Solution

$$1300 - (7/250) \times 1125$$

Set up a diagram to show the linear disappearance of the deductible.

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Claim	1000	1300	2000
Deductible	250	X	0
Loss Payment	750	1300 - X	2000

Using linear interpolation, $X = \left(\frac{2000 - 1300}{2000 - 1000}\right)(250) = 175$, so the resulting loss payment is $1300 - 175 = 1125$. ■

An interesting feature in the dwelling insurance coverage on a replacement cost basis is a provision called *coinsurance*. Most homes experience little or no damage year after year (at least nothing in excess of the deductible). Even if there is a claim, it is usually far less than the full value of the home or the amount of insurance purchased on it. Thus, most property losses are partial, not total, and are relatively small. For homeowners insurance, the loss distribution is heavily weighted toward the smaller claim amounts. At the same time, the ratemaking model used in North America provides a flat rate per thousand of coverage. Hence, if you insure a \$300,000 home for its full value, you pay a premium equal to 300 times the rate per thousand listed for your territory and type of home. However, if you choose to insure your home for only \$100,000, you would pay only 100 times the applicable rate. Because of the nature of the homeowners loss distribution, a tripling of the insurance does not triple the insurer's expected loss payment. Therefore, the premium for \$100,000 of coverage should be more than one-third the premium for \$300,000 of coverage on the same house. To help overcome this source of possible inequity, insurers encourage policyholders to insure their homes to near full value. Normally, if the insurance equals at least 80% of the value of the house *at the time of the loss*, it is deemed to be insured for the full value. Demanding 100% coverage would be difficult because of the movement of real estate values from one policy anniversary to the next. An example of how this clause works may be helpful.

Example 2.2

A homeowner has a house valued at 300,000, but has insured it for 200,000 with an insurer that requires 80% of full cover-

Homeowners Insurance

age before it reimburses losses in full. If coverage is less than 80% of full coverage, then any loss is reimbursed on a pro-rata basis of what would have been paid had the 80% requirement been met. The homeowner has a kitchen fire estimated at 40,000 on a replacement cost basis. How much will the insurer pay toward reimbursing the homeowner for this loss?

Solution

For full coverage, the homeowner needed insurance equal to at least 240,000 (80% of 300,000) as measured at the time of loss. In this case the homeowner only had 200,000 of coverage. Thus, on the 40,000 kitchen fire, the insurer would pay

$$\frac{200,000}{(.80)(300,000)} \times 40,000 = 33,333.$$

The amount of reimbursement paid by the insurer is further limited to the policy limit of the policy (200,000 in this case). ■

In determining compliance with the coinsurance requirement, the insured is permitted to deduct the cost of excavations and pipes, wiring, or foundations that are below the basement (or below the ground if there is no basement), from the replacement cost of the home.

There are several arguments in favor of the coinsurance clause, including the following:

- (1) It encourages insurance to value.
- (2) The use of the coinsurance clause results in premium equity among insureds. If losses are skewed to smaller claims, but the premium is a linear function of the amount of insurance purchased, then, without a coinsurance clause, persons who purchased small amounts of insurance would bring more risk to the pool than would be commensurate with the premium they paid, whereas those who bought full coverage would be paying more than their fair share based on the risk they were contributing. The coinsurance clause provides a simple mechanism necessary to make the linear premium formula equitable among policyholders.

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- (3) The overall rate level can be lower but still adequate. This is really a corollary to the second point. By making everyone pay a premium equal to the risk for which they will be compensated, it allows for a lower average rate per thousand of coverage since it removes the possibility of anti-selection (*i.e.*, a case where someone knowingly buys a small amount of insurance, but still expects full coverage on claims less than the policy limit).

There are also some disadvantages of this coinsurance arrangement, which include the following:

- (1) The clause is not well understood by the policyholder.
- (2) A policyholder who buys less than full coverage is only penalized if there is a claim, since he or she can pay a lower premium and get away with it. For example, a restaurateur may have to prove the existence of insurance coverage before being granted a license.
- (3) The 80% coinsurance percentage (or any other percentage less than one hundred) discriminates against those who carry higher levels of insurance (which should be encouraged).
- (4) Because of the misunderstanding of the coinsurance clause, some costly disputes arise over its use and meaning.
- (5) With high rates of inflation in real estate (a problem during the 1980's), a homeowner may unwittingly fall below the coinsurance percentage requirement. (Note that this is why the 80% requirement is used; houses seldom rise in value by more than 25% in one year.)
- (6) The use of a coinsurance percentage less than 100% implies a recommendation to the policyholder to buy less than full coverage.

Coverage B of Section I provides a specific amount of insurance on a garage and other structures on the premises, which are separate from the primary dwelling, normally equal to 10% of the dwelling coverage amount. This insurance may

be increased above the standard 10% by paying an extra premium. Separate structures used for business purposes or held for rental are not covered.

The coverage on the dwelling and other buildings under the normal homeowners policy provides replacement cost coverage if the coinsurance clause has been satisfied. Otherwise coverage is for the actual cash value specified in the policy and the coinsurance provision does not apply.

Coverage C of Section I of the homeowners policy will insure the actual cash value of the policyholder's personal property and contents of the house up to a defined policy limit which is usually a percentage of the insured value of the house that varies among insurers but is normally either 40% or 50%. Thus, if the home is covered for \$200,000, the contents would be covered up to a policy limit of \$100,000 for the covered perils, if the Coverage C percentage is 50%. Coverage C extends to borrowed property in the possession of the insured.

Inside limits apply to certain losses. For example, there will be a defined limit on how much will be reimbursed in the case of loss or theft of cash (e.g., \$1000). Also, there will be inside limits on the coverage for jewelry, silverware and art. If the homeowner wants full insurance on these last three items, then a *schedule* of the items to be insured, with their appraised values, will be attached to the policy and an extra premium will be charged for these scheduled items. In the case of loss or theft of such items, the amount paid out by the insurer will be exactly the amount set in the schedule, not the current market value of the items. This benefit is referred to as a *valued* benefit (since there is no loss distribution associated with this part of the policy), such as exists in life insurance.

The coverage for the contents of the home also applies when personal items are outside of the home. For example, if you are traveling and lose some personal assets, your homeowners policy will provide coverage for such a loss, normally anywhere in the world. However, coverage on property at any other insured residence besides the main resident dwelling (e.g., a vacation home) is normally limited to 10% of the amount of Coverage C.

Coverage D of Section I provides coverage for additional living expense and loss of rental income. This coverage will pay the fair rental value for alternative accommodation

while your dwelling is being repaired because of damage caused by a covered peril. It will also compensate you for loss of rental income from a part of the house which is lost while the damage is being repaired. The limit of coverage for Coverage D is normally 20% of the coverage on the dwelling.

The second major section of the homeowners policy provides liability coverage to the policyholder. Liability could arise if a third party is injured or if the property of a third party is damaged while on your property. Before any payment is made, however, the injured party is technically required to establish negligence on the part of the homeowner, and show that there were injuries or damage that require compensation. Although this might require a full court hearing, most claims are settled out of court.

As with auto insurance, the insurer will defend the homeowner in court and pay the costs of defense. However, as with auto insurance, the insurer has the right to settle out-of-court without the insured's permission. Payments to the third party for injury or property damages are limited by the liability limits of the homeowners policy (this will be a specified limit such as \$2 million), but the cost of the defense is paid over and above the payment for damages. However, the insurer can break off the defense of the case once it has paid costs for damages which equal the liability limits defined in the policy.

Finally, the homeowners policy will normally provide very limited medical coverage for any third party injured on your property without the need to sue to recover (i.e., on a no-fault basis).

The homeowners insurance policy is not meant to cover buildings used for commercial purposes and will so stipulate. We will not specifically discuss such commercial coverage here.

Rates for homeowners insurance vary by the home's geographic location, its construction, and its value. The geographic location parameter reflects such risk classification factors as distance to the nearest fire station, the probability of perils such as earthquake, floods, windstorms, and so on. If the probability of a defined event is very high, and would create unaffordable rates, one alternative is to exclude the named peril and offer coverage for this named peril at an extra premium. For example, homes in low-lying areas often

exclude coverage caused by flooding because, if covered, the rates would be prohibitively high.

Rates will also vary depending on the construction materials used in the house. For example, homes with untreated cedar shake shingles as roofing may have higher rates. Discounts on rates may be offered if there is a security or sprinkler system in the home, and so on.

2.4 TENANTS PACKAGE

For people who rent rather than own their own homes, coverage is available in a policy called a *tenants package*, which covers most of the items contained in a standard homeowners policy, but with modifications to reflect the lesser exposure to risk inherent in a tenant's contribution to the pool. For example, the chance of a liability claim is far less in an apartment than on the land, or in and around the home, of a homeowner. Much of the total liability risk inherent in an apartment complex will be covered by the liability coverage carried by the owner of the apartment building. Also, if the apartment building is damaged by wind, fire or other insured peril, it is not of concern to the tenants except as to their personal possessions and some rights of tenancy. Therefore, the coverage within a tenants package is mostly coverage for personal possessions in one's apartment or storage area. This policy will not be discussed further here.

2.5 WORKERS COMPENSATION ✓

Workers compensation is an example of an early introduction of no-fault insurance whereby workers gave up their rights to sue their employers in cases of occupational accident or sickness in return for no-fault benefits on a pre-defined or scheduled basis. Workers compensation requirements are defined by legislated statutes in each state or province.

Prior to 1895, it was normally very difficult for a worker to get compensation in case of injury or illness. The worker was forced to sue the employer and prove negligence

on the part of the employer. It was normally the case that the worker could not collect compensation if the worker contributed in any way to the injury or sickness (the *doctrine of contributory negligence*), or even if the injury or sickness resulted from the negligence of a fellow worker (the *fellow-servant doctrine*), because it was necessary to show that the employer was at fault. Further, the ability to sue was often restricted if it could be shown that the worker had advance knowledge of the inherent dangers of the job (the *assumption-of-risk doctrine*).

Under current workers compensation laws, which exist in all states and provinces, the employer is deemed to be absolutely liable for the occupational injuries suffered by the worker, regardless of who might be at fault in the eyes of a court of law. In return, the compensation paid to the injured or sick worker is normally limited to the benefit defined in the workers compensation legislation.

Objectives of workers compensation include the following:

- (1) Broad coverage of workers for occupational injury and disease.
- (2) Substantial protection against loss of income.
- (3) Sufficient medical care and rehabilitation services.
- (4) Encouragement of safety. (For example, most state workers compensation plans allow experience rating whereby employers with superior claims records pay relatively lower premiums, and vice versa.)
- (5) An efficient and effective delivery system for benefits and services.

In Canada, workers compensation is normally administered by a Workers Compensation Board controlled by the provincial government. In the United States, an employer can satisfy the compulsory workers compensation law by obtaining private insurance (the most common method), by self-insurance, or by use of the state workers compensation fund. Five states offer only a monopolistic state fund.

About 87% of *salaried* workers in the United States are covered by some form of workers compensation. Depending on the state, those not covered include farm labor, domestic servants, casual employment, and employees of some very

small firms. Some states also exempt nonprofit educational, charitable, or religious organizations. Railroad workers in interstate commerce and seamen in the U.S. Merchant Marine are covered under the Federal Employees' Liability Act with very similar provisions and benefits.

For an injury or sickness to be covered by workers compensation, the injured worker must work in a covered occupation and have experienced an accident or disease that arose out of *and* in the course of employment. Examples of injuries that are not covered are those arising out of driving to and from work, employee intoxication, and intentional self-inflicted injuries.

A worker can usually expect the following workers compensation benefits:

- (1) Medical care benefits, which represent 40% of the workers compensation claims by amount. Workers compensation normally provides unlimited medical care (*i.e.*, there are normally no dollar or time limits).
- (2) Disability income benefits payable to the worker after a waiting period of from 3 to 7 days. If the worker is disabled long enough, then benefits are normally paid retroactively to the date of injury. The weekly benefit is based on a percentage of the worker's average weekly wage (*e.g.*, 66 2/3%) and the degree of disability. Most states have minimum and maximum weekly benefits which normally adjust with the state's average industrial wage. The degree of disability is usually classified as one of (a) temporary but total, (b) permanent and total (for which most states pay lifetime benefits), (c) temporary and partial, or (d) permanent but partial. Examples of the latter include the loss of a limb or an eye (for which a set scheduled benefit would be paid), and a back injury (a non-scheduled injury for which some benefit, which is a function of the wages lost, would be paid).
- (3) Death benefits including a burial allowance plus cash-income payments to any eligible surviving dependents.
- (4) Rehabilitation services and benefits.

In the United States, the cost of workers compensation is normally paid 100% by employer premiums or direct payment of benefits for self-insured plans. The premium is normally a function of the payroll of the employer, the industry class of the occupation being covered (*e.g.*, lumberjacks are charged a higher rate than are bank tellers), and so on. For small employers, all companies within a defined industry classification are charged the same rate (this is called *class rating*). In some states, the administrative costs of the workers compensation system are paid by the state. Normally, however, in the United States virtually all costs are borne by the employers.

The benefits and eligibility requirements for workers compensation in Canada are almost the same. The primary difference between workers compensation in the United States and most of the rest of the industrialized world including Canada, is the common use of private insurance in the United States. In the rest of the world, workers compensation is almost always administered by a government agency which also sets the rules for coverage, the rates to be paid, and the level of benefits.

2.6 FIRE INSURANCE

Homeowners and tenants package provide property and liability insurance to individual homeowners and tenants. Businesses also need property and liability insurance. Standard coverages that provide such protection are reviewed in this and the following two sections.

Fire insurance is designed to indemnify the insured for loss of, or damage to, buildings and personal property by fire, lightning, windstorm, hail, explosion, and other perils. Coverage may be provided for both the direct loss (*i.e.*, the actual loss represented by the destruction of the property), and the indirect loss (the loss of income and/or extra expenses due to the loss of use of the protected property). Originally only fire was an insured peril, but the number of perils insured against has gradually been expanded until it has reached the present status where even all-risks coverage can be provided, albeit with some exclusions, as previously mentioned.

The *standard fire policy* (SFP) is the starting point for all fire insurance coverages. The SFP covers only direct loss from fire and lightning, and at least one additional form must be attached to have a valid policy. Forms used to complete the coverage under the SFP include the following:

- (1) Those that provide personal coverage (dwelling building and contents forms).
- (2) Those that provide commercial coverages (general property, multiple location, and reporting forms).
- (3) Those that increase the covered perils, such as the extended coverage perils of vandalism or malicious mischief, and the optional perils policy.
- (4) Those that increase the covered losses, such as additional living expenses, rental value, rental income, leasehold interests, demolition expenses, consequential loss or damage, replacement costs, business interruption losses, profits and commission losses, and extra expenses.

Types of coverages written by fire insurers on separate policies, rather than by forms attached to the SFP, are called *allied lines*. Principal allied lines include earthquake insurance, rain insurance, sprinkler leakage insurance, water damage insurance, and crop hail insurance. Risk managers of large corporations may design their own forms to meet their own specific needs.

2.7 MARINE INSURANCE

There are two types of *marine insurance*, ocean marine and inland marine insurance. Many *ocean marine insurance* policies are closely related in wording to those originally written at Lloyd's Tea House more than 200 years ago. Similarly, when insurance forms and policies were needed for the trucking industry, modifications of marine insurance forms were used. Thus developed the name *inland marine insurance* for the trucking industry.

Marine insurance, like fire insurance, is designed to protect against financial loss resulting from damage to, or

destruction of, owned property, except that here the covered perils are primarily those connected with transportation.

Ocean marine insurance policies provide coverage on all types of oceangoing vessels and their cargoes. Policies are also written to cover the shipowner's liability. The coverage of the basic policy applies to cargo only after it has been loaded onto the ship, but policies are frequently endorsed to provide coverage from "warehouse to warehouse," thus protecting against overland transportation hazards as well as those of the ocean.

Risks eligible for coverage under inland marine forms include the following:

- (1) Domestic shipments including goods being transported by railroads, motor vehicles, or ships and barges on the inland waterways and in coastal trade. In addition, provision is made for insuring goods transported by air, mail, parcel post, express, armored car, or messenger.
- (2) Instrumentalities of transportation and communication such as bridges, tunnels, piers, wharves, docks, communication equipment, and movable property.
- (3) Personal property floater risks used for coverage of construction equipment, personal jewelry and furs, agricultural equipment, and animals.

2.8 LIABILITY INSURANCE

In Sections 2.2 and 2.3, we pointed out that liability is an important coverage within both auto and homeowners insurance, and it provides two levels of security for the policyholder. First, in the case of injury to a third party or in the case of damage to the property of a third party, where negligence was alleged against the policyholder, the insurer will defend the policyholder in court, if necessary, but the insurer can stop the defense when the amounts paid for damages equal the limits of the policy. Further, if the policyholder were found to be negligent and at fault, and damages were assessed to be paid to the third party for injury or property damage, then the insurer would pay these dam-

ages within the policy limits. Note that payment of damages plus the cost to defend can, and often do, exceed the stated policy limits. As stated earlier, most cases are settled out of court.

Examples of liability insurance sold as a separate coverage include *product liability insurance, errors and omissions insurance, medical malpractice insurance, professional liability insurance*, and others of a similar nature. These coverages will not be discussed further in this textbook.

2.9 LIMITS TO COVERAGE

In all of the types of insurance outlined in this chapter there were limits to coverage. More specifically, these limits included deductibles as well as policy limits (both overall and some inside limits). We now discuss the reasons for such limits, and some of the problems associated with them.

2.9.1 DEDUCTIBLES

Reasons for deductibles include the following:

- (1) Small losses do not create a claim, thus saving the associated expenses.
- (2) For larger losses, the average claim payment is reduced by the amount of the deductible which is translated into premium savings.
- (3) The fact that the deductible puts the policyholder at risk provides an economic incentive for the policyholder to prevent a claim.
- (4) The policyholder can optimize the use of limited premium dollars by using the deductible to save money where the value of the coverage is not as great (*i.e.*, in terms of its utility).

Problems associated with deductibles include the following:

- (1) The insured may be disappointed that losses are not paid in full. Certainly, deductibles increase the risk for which the insured remains responsible.

- (2) Deductibles can lead to misunderstandings and bad public relations.
- (3) Deductibles may make the marketing of the coverage more difficult.
- (4) The insured may inflate the claim to recover the deductible, which is unfair to the honest policyholders who will pay the resulting higher premium.

There are several types of deductibles, including the following:

- (1) **Fixed dollar deductibles**, which apply to each claim.
- (2) **Fixed percentage deductibles**, which may be a percentage of either the loss or the policy limit, that apply to each claim. A fixed percentage deductible is usually combined with a minimum dollar deductible so the insurer does not need to handle small claims.
- (3) A **disappearing deductible**, as explained in Section 2.3 on homeowners insurance. If the loss is less than a dollars, the insurer pays nothing. If the loss exceeds b dollars, then the insurer pays the loss in full. If the loss is between a and b , then the deductible is reduced pro rata or linearly between a and b (see Example 2.1). The complexity of the disappearing deductible and the difficulty in making it understandable has resulted in its decreasing use.
- (4) A **franchise deductible**, whereby if the loss is less than n dollars the insurer pays nothing, but if the loss equals or exceeds n the claim is paid in full. This is just a **cliff disappearing deductible**. This type of deductible used to be common in ocean marine insurance, but is seldom used today at all.
- (5) Health insurance policies or medical expense insurance policies (not discussed in this book) often use a **fixed dollar deductible per calendar year** (as opposed to a per loss deductible). Often the policyholder is able to choose among a variety of deductibles with the premium going down as the deductible goes up. This deductible can sometimes be a dollars for an individual policyholder, but b dollars for a family under family coverage. This type of deductible is not widely used outside of health insurance.

- (6) Disability income and sickness insurance benefits often have an *elimination period*, which is the period from the time of the disablement to the date that disability benefits begin. This is common in workers compensation. Sometimes the elimination period differs depending upon whether the cause of the disability is an accident or a sickness. If so, it is common to have a shorter elimination period for accidents than for sicknesses. As noted in Section 2.5 on workers compensation, if the disability continues beyond a defined period of time, benefits will then be paid retroactively to the first day of disability. If the retroactive qualification period equals the elimination period, this arrangement is equivalent to a franchise deductible.

2.9.2 POLICY LIMITS

An insurer can have a variety of reasons for placing a limit on the coverage provided in a policy, including the following:

- (1) The limit clarifies the insurer's obligation. (Note that workers compensation coverage is unlimited.)
- (2) In the context of risk, setting a policy limit provides an upper bound to the loss distribution for the insurer and lessens the risk assumed by the insurer. This, in turn, decreases the probability of insurer insolvency. Having policy limits also decreases the premium that must be charged for the basic coverage.
- (3) The policy limit enforces the *principle of indemnity*, according to which the insured should not profit from a loss.
- (4) Having policy limits allows the policyholder to choose appropriate coverage at an appropriate price (the premium will be lower for lower policy limits).

As has been discussed throughout this chapter, a policy can have more than one limit, and, overall, there is more than one way to provide for policy limits. For example, in a homeowners policy, there will be a defined limit for the liability coverage. The dwelling coverage will be limited by

the value of the dwelling determined by the policyholder and the agent. The contents coverage limit is a percentage of the dwelling limit. There will be scheduled limits on the coverage provided for jewelry, silverware, and so on. Also, there can be inside limits for other coverages, such as a limit on the insurance for stolen cash.

Remember that the total of all loss adjustment expenses (*e.g.*, legal costs) and the payment of damages can exceed the policy limit. Only the payment of damages is subject to the policy limits.

2.10 CONCLUSION

This chapter has provided a generic description of several of the most important insurance coverages provided by property/casualty insurers. The descriptions were very general, and should apply to these coverages worldwide. The coverages described are only a sample of coverages available. Other coverages include *boiler and machinery insurance*, *contract surety insurance*, *business interruption insurance*, and many others. Each coverage has its own particular policy legal requirements and limits, and, as a result, each has its own unique ratemaking methodology.

Readers of this textbook are encouraged to review their own auto and homeowners (or tenants package) policies carefully to understand the legal restrictions that exist within their own coverages.

2.11 EXERCISES

- 2.1 Differentiate between the specified perils and the all-risks or comprehensive approaches to coverage. Is the all-risks approach truly all-risks?
- 2.2 What is the significance of the doctrine of proximate cause in determining covered losses?
- 2.3 List and explain the reasons for the use of policy limits.

- 2.4 (a) List and explain the objectives of the coinsurance clause.
 (b) List the disadvantages of the coinsurance clause.
- 2.5 List the advantages and disadvantages of deductibles.
- 2.6 Define clearly the concepts of (a) salvage and (b) subrogation. Describe the effects that these concepts have on insurance premiums.
- 2.7 With respect to workers compensation insurance, define and differentiate the following doctrines:
- (a) Contributory-negligence
 - (b) Fellow-servant
 - (c) Assumption-of-risk
- 2.8 List the objectives of workers compensation.
- 2.9 Outline briefly the normal benefits provided under a workers compensation plan.
- 2.10 Find the amount of the loss, given the following information:
- | | |
|---|---------|
| Amount of insurance purchased | 400,000 |
| Coinsurance requirement | 80% |
| Property's insurable value at time of loss | 800,000 |
| Property's insurable value
when policy was purchased | 700,000 |
| Amount of loss paid by the insurer | 320,000 |
- 2.11 A building is worth 200,000 just before a loss. It is insured by a policy that has an $X\%$ coinsurance clause. The amount of loss is 10,000 and the insured carried 120,000 of coverage. The insurer pays 7,500. Find X .

- 2.12 Assume that in Exercise 2.11 the coinsurance requirement was 70% and that there was a loss of 175,000. How much does the insurer pay?
- 2.13 Polly C. Holder has coverage with a linearly disappearing deductible. Up to 250 of claim, the insurer pays nothing. Beyond 1000, the insurer pays all. What does the insurer pay on a claim of 750?
- 2.14 In each of the following cases, what will the insurer pay on a claim of 12,000?
- (a) A 20% deductible and a policy limit of 12,500.
 - (b) A straight deductible of 1000 and a policy limit of 10,000.
 - (c) A linearly disappearing deductible such that a claim of 5000 has no loss payment, but a claim of 15,000 is paid in full.
- 2.15 A decision maker is faced with a random loss that has a uniform distribution over the interval $0 < X < 10$. If she wishes to pay a premium of 2, then the optimal coverage requires a deductible of d . Assuming no expenses, find d .
- 2.16 A company provides a coverage whose loss distribution is uniform over the interval $0 < X < 5000$. If the company moves from a deductible of 250 to a deductible of 500, how much will the expected loss payments be reduced?